

Amendments to the Specification

Change the title of the application to "Wire, Wire Rope or Cable Assemblies and Devices using Same for Seat Belt Component."

Please replace paragraph no. 002 on page 1 with the following rewritten paragraph:

[002] Reference is made to Figures 1 and 2, which illustrate the construction of a typical wire rope (cable) 20. The wire rope 20 typically includes a core 22, which can be a solid wire or of a multi-strand construction of small diameter wires. The core 22 can be metal, a resin-based material or a naturally occurring material such as wood, cotton, etc. The wire rope or cable 20 additionally includes a plurality of exterior strands 24 wound about the core 22. In many applications, each exterior strand 24 can be formed of a plurality of thin wires 26 or by a single wire. For the purpose of illustration, the wire rope 20 shown in Figures 1 and 2 is of conventional construction and comprises a multi-wire stranded core 22 and ~~[[six]]~~ five external multi-wire strands 24 twisted about the core 22. The lay of the wires relative to each strand as well as the lay of each strand 24 relative to the core 22 will vary with application. The number of wires in a given strand, as is known in the art, will vary from about 3 -19.

Please replace paragraph no. 008 beginning on page 3, with the following rewritten paragraph:

[008] Reference is made to Figure 4, which shows another use for a wire rope or cable assembly such as 60, which has been incorporated into a known type of seat belt tightener 70 (also referred to in the art as a pretensioner). In a broad sense a pretensioning mechanism also anchors the seat belt buckle. This cable assembly 60 comprises the wire, wire rope or cable 20 terminated at one end 36 at the buckle anchor 40, which is connected to or is formed as part of a frame of a seat belt buckle 42. The other end 34 of the cable 20 is terminated at a piston 68. The pretensioner 70, which is of known design, additionally comprises a tubular housing 72 (which supports the piston) extending from a propellant or generant housing 74 and a bracket section 75. ~~The bracket section is fastened to the generant housing 74. A mounting bracket~~ section 75 is connected to the generant housing 74. A quantity of propellant 76 is

located within the generant housing 74 such that when the propellant burns the gases produced propel the piston 68 rapidly down the tube 72, forcibly pulling the cable 20 into the pretensioner 70, which pulls the buckle 42 toward the pretensioner. The downward movement of the buckle reduces slack in the seat belt (not shown) about the occupant. The operation of pretensioners is well known.

Please replace paragraph no. 009 beginning on page 4, with the following rewritten paragraph:

[009] Characteristically many buckle belt tighteners such as 70 include a direction changing mechanism 80 such as a pulley, pulley wheel or pulley segment, all of which are denoted by numeral 82. The pulley 82 is secured to or is part of the bracket section 75. As can be seen, the medial section 84 of the cable 20 is looped about (in contact with, threaded through) the pulley 82. The pretensioner 70 includes a guard(s) 86 that functions to prevent the cable from moving off from the pulley 82. In some pretensioners the guard 86 is realized by stand-offs or stops, which are formed (often as bent tabs) as part of the bracket 75 or as part of the pulley 82. These stand-offs or guards 86 define, in cooperation with the pulley 82, a channel in which the cable 20 resides and, as mentioned, the stand-offs or guards maintain the flexible cable in proximity to the surface of the pulley. US patent 5,911,440 shows one prior buckle pretensioner. Additionally, as can be appreciated, the placement of the ~~stands-guards~~ 86 about the pulley defines the departure angles the cable 20 makes with the pulley. In use within a pulley, the initially straight though flexible cable is easily bent by hand and positioned about the pulley. The channel for the cable can also be machined into mating pretensioner parts as shown in Canadian patent 2158901.

Please replace paragraph no. 011 on page 5 with the following rewritten paragraph:

[0011] The pretensioner 70 of Figure 4 includes one such energy absorbing mechanism in the form of a thin-walled tube 90, which is made as an integral part of ferrule ~~[[45]]~~ 40. This tube can also be a separate part positioned loosely about the cable and might be located remote from the ferrule 40. As the ferrule 40 is pulled into contact with the pulley 82 and pulley housing/bracket 75, the tube 90 deforms.

Please replace paragraph no. 023 on page 7 with the following rewritten paragraph:

[0023] Figures 9A, ~~and 9B~~ and 9C show an alternate method of treating a wire rope.

Please replace paragraph no. 025 on page 7 with the following rewritten paragraph:

[0025] Figures 11A and 11B show the present invention within ~~a portion of a belt tightener~~ rear seat belt assembly.

Please replace paragraph no. 031 on page 9 with the following rewritten paragraph:

[0031] In the embodiment shown in Figure 5 the untreated or native wire rope or cable segment such as 20, of length A, is immersed one or more times in one or more vat(s) 202 ~~[[or]]~~ to 200n (or treatment tank) of liquid coating material (in this case molten solder 204) to coat the immersed portion of the wire cable 20. The solder, and in general other coating materials, will coat the wire rope or cable 200 or the selected portions thereof, with a thin, generally flexible, coating that is impervious to air, water and other contaminants. Depending upon the amount of solder and/or alloy used (coating material) 204 covering the cable 200, the cable 200 will become more difficult to bend (or straighten or twist), as the case may be. A wire rope or cable 200 that is more resistant to bending can be used in the environment of Figure 3 and might eliminate the need for a plastic sleeve, which previously served as a support mechanism for the bendable untreated cable 20. An additional benefit of the present invention is the coated wire rope 200 can be shaped into various shapes and it will retain the selected shape. In contrast, the untreated wire rope or cable 20 will generally return to a straight configuration. Depending on the physical characteristics of the wire rope/cable 20 and the quantity and/or alloy of solder 204 applied, the treated wire rope will be able to support items of differing weight placed at an end of the cable 200. As the invention is using the coated cable is in conjunction with an automotive belt, the solder (or resin or epoxy) used should be pliable within a temperature range of -40 degrees F and 120 degrees F.

Please replace paragraph no. 033 on page 10 with the following rewritten paragraph:

[0033] The solder (coating material) 204, is maintained in liquid form within a treatment tank 202, enters into the inter-wire spaces 27a (also the inter-strand spaces 27a) and coats the exterior of the segment of cable 20 to be treated. Subsequently, the coating material 204 (solder) will cool and harden to its semi-solid form. Depending on the material used to make the uncoated wire rope or cable 20, different solders can be used. Solder can be made of one or more materials including lead, tin, silver, bismuth or a combination of materials such as tin/silver, tin/antimony, or tin/copper/selenium. Each solder has a different strength as well as differing melting temperature.

Please replace paragraph no. 035 on page 11 with the following rewritten paragraph:

[0035] The rope segment 200 is left in the liquid (solder) 204 (or other coating material) a sufficient amount of time to permit the liquid to fill the inter-strand or inter-wire spaces 27, 27a as shown in Figure 6. Thereafter, the rope segment 200 is removed from the liquid 204, it can be agitated, if needed, to remove excess liquid (solder) and permitted to dry or cool (depending on the characteristic of the coating material being used). As the solder cools it returns to its room temperature, flexible, semi-solid state. In general it may be said the solder "hardens," which in general is also characteristic of resinous (epoxy) materials. Those portions of the wire segment 200 treated with solder are now significantly more stiff than untreated portions. One specific advantage of solder is that when it hardens it is not brittle and may be less susceptible to chipping or breaking of the cable 20 when the cable is bent.

Please replace paragraph no. 037 on page 12 with the following rewritten paragraph:

[0037] As mentioned above, the preferred coating material is molten solder. Multiple layers of the same solder can be achieved by reducing the immersion time of the cable 200 for subsequent layers of solder. Multiple layers of solder can also be achieved by immersing the cable 20 in various tanks 200 - 202n of different molten solders. For example, the cable 20 would first be immersed in solder having the highest

melt temperature of the solders used. The first solder is permitted to solidify and then the treated cable 200 is immersed in a second solder that has a lower melting point. This process can be repeated as many times as needed. Additionally, as is known, the choice of alloy material(s) used in the solder affects the melt temperature of these alloys and also affects the strength of the solder, providing additional advantages in being able to customize the performance of the coated cable 200. Further, the second and subsequent layers of coating material can be applied differently than the first layer of coating material, for example, it/they can be sprayed or wiped on.

Please replace paragraph no. 040 on page 13 with the following rewritten paragraph:

[0040] The present invention offers added flexibility for the manufacture of cables and cable related parts. For example, rather than incurring the expense of coating each cable terminating mechanism before it is attached to a cable, the uncoated cable terminator can be first attached such as by crimping to an end of the untreated wire rope 20. Thereafter both the cable 20 and its terminating mechanism(s) 40, 44 are dipped into the solder ~~[[202]]~~ 204.

Please replace paragraph no. 041 on page 13 with the following rewritten paragraph:

[0041] Reference is again made to Figure 5. In certain applications it may be desirable to coat the wire rope or cable segment in a non-uniform manner. For example, it may be beneficial to provide a first coating C1 to the wire rope segment by dipping the wire segment length A1 into the coating material in the manner described above. By treating only a portion of the wire rope 20, the remaining, untreated portion retains its original flexibility, and still permits the untreated flexible portion of the rope to be easily inserted or placed about, into or onto a curvilinear surface such as the pulley 82. The next time the segment 200 is dipped, it is only dipped to a length A2 resulting in coating C2 as shown in Figure 7 (as can be appreciated the relative thickness positions of any of the layers has been greatly exaggerated for the purpose of illustration). As can be seen the top end of the wire segment only has one layer of coating material while the rest of the segment includes multiple coats. The coating layers can be staggered across the length of the segment with various thicknesses of

coating C3 - CN applied to various portions, which need not be contiguous. The term A_n in Figure 5 represents the length of the segment that was dipped during the n^{th} dipping cycle. Certain layers can be applied coincident as in the case of layers C3 and C4. The thickness of the coating can be greater at one end of the cable segment 20 or greater in the middle and taper to one or both ends.

Please replace paragraph no. 046 on page 16 with the following rewritten paragraph:

[0046] Figure 9A diagrammatically shows a fixture 300 used to shape the untreated cable 20 into a preformed shape. The cable 20 is shown in phantom line in Figure 9A positioned between various features of the fixture. The fixture includes a pivot or post 302 and stops 304 and 306. The stops can be remote from the post 302 and can also be configured with a hook or clamp to hold respective ends 34 and 36 of the wire segment 60 at a designated angle. The relative angular placement of the stops 304 and 306 and the post 302 are located to replicate the orientation of the cable 20 in the belt tightener 70 (shown in Figure 4). The stops 304 and 306 are located on lines that extend tangentially from the post, in the manner the wire 20 extends about and exits the pulley 82 (of the pretensioner 70[[a]]). The post and the stops can be secured to a holding mechanism such as a plate 301 and the wire 20 attached thereto prior to treatment. The stops can also be physically linked to the post 302 (for example see the embodiment of Figure 9C).

Please replace paragraph no. 050 on page 18 with the following rewritten paragraph:

[0050] In use, a center portion 20a of a segment of cable 20 is centered over the loop 303a and the extending ends 20b and 20c of the wire 20 are bent and positioned adjacent one of the stops ~~303b-304~~ and ~~303c-306~~. In this configuration the center 20a of the cable 20 will conform to the radius of the curvature of the loop 303a and the ends 20b and 20c of the cable wire 20 will be held from springing outwardly as each end is held in position by a respective stop 304 and 306. The wire 303, which forms this alternate fixture 303a, can be covered in a ceramic or other material inconsistent with using solder. Thereafter, the bent wire 20 is treated with a coating

material (such as solder) in a manner as described above and then removed and installed, as a perform, within a pretensioner such as 70.

Please replace paragraph no. 055 beginning on page 20, with the following rewritten paragraph:

[0055] Reference is made to Figure 13, which shows another alternate of the invention. In this embodiment the seat belt buckle 42 is connected to anchor 44a by a length of flexible seat belt webbing 400. The top of the seat belt 400 is formed into a first loop 402, which is looped, in a conventional manner, through an opening and about a bar 404 associated with the buckle 42 or buckle frame; the loop is sewn closed. The other end of the seat belt is also formed into another loop 406, which is received through another opening and about a bar 408 associated with the anchor 44a and sewn closed. The above configuration is standard in the industry and represents an alternate to attaching the buckle to the anchor via a wire cable 20 as shown in Figure 3. Additionally, in this configuration the seat belt webbing 400 is very flexible and the seat belt webbing is often threaded through a sleeve such as 52 (see Figure 3) to stiffen the overall configuration prior to attachment to both the anchor and the buckle. As is known, seat belts are made of a woven construction of intersecting weft and warp fibers. Small openings 410 exist at the intersection of each of these fibers. In the present invention the seat belt webbing 400, the lower portion 412 of the buckle 42 and the upper portion 414 of the anchor 44a are coated with a flexible, durable material 420 including a flexible silicon rubber, urethane resin or vinyl such as PlastiDip® to increase the rigidity, i.e. make the seat belt webbing less flexible. The material chosen makes the seat belt webbing 400 sufficiently rigid so it (the seat belt) can support its own weight and the weight of the buckle and anchor, and will not bend but is still sufficiently flexible to be bent and twisted under larger applied forces.